AMENDMENTS TO THE CLAIMS

1. **(Currently amended)** An oOpen-pored biocompatible surface layer for an implant, which layer is arranged on a virgin surface of the implant, ~~characterised in that~~ comprising:

~~the layer thickness of~~ an ~~the~~ open-pored surface layer with a thickness ~~is~~ in a range selected from the group consisting of the range from 0.1 mm to 2.5 mm inclusive, ~~preferably in~~ the range from 0.3 mm to 1.9 mm inclusive, and ~~especially in~~ the range from 0.5 mm to 1.5 mm inclusive; and

~~–~~the porosity of the open-pored surface layer is in a range selected from the group consisting of the range from 20% to 85% inclusive, ~~preferably in~~ the range from 30% to 70% inclusive, and ~~especially in~~ the range from 35% to 65% inclusive.

2. **(Currently amended)** The sSurface layer according to claim 1, wherein ~~characterised in that~~

the open-pored surface layer has pits or ~~, especially~~ etching pits, having a diameter in a range selected from the group consisting of the range from 0.1 μm to 2.5 μm inclusive, ~~preferably in~~ the range from 0.5 μm to 1.9 μm inclusive, and ~~especially in~~ the range from 0.8 μm to 1.5 μm inclusive.

3. **(Currently amended)** The sSurface layer according to ~~one of c~~ Claims 1 ~~or 2~~, wherein ~~characterised in that~~

the open-pored surface layer has a shallow roughening in the sub-micrometer ~~re~~ range.

4. **(Currently amended)** The sSurface layer according to claim 1, further comprising particles arranged on the implant surface, said particles selected from the group consisting of ~~one of the preceding claims, characterised in that~~

biocompatible particles, ~~especially of~~ titanium dioxide biocompatible partiecles, and ~~or~~ calcium phosphate biocompatible particles ~~, are arranged on the implant surface~~.

5. **(Currently amended)** The sSurface layer according to claim 4, wherein ~~characterised in that~~

the biocompatible particles have a particle size in a range selected from the group consisting of the range from 0.01 μm to 5 μm inclusive, ~~preferably in~~ the range from 0.1 μm and 3 μm inclusive, and ~~especially in~~ the range from 0.2 μm to 1 μm inclusive.

6. **(Currently amended)** The s~~S~~urface layer according to ~~one of~~ claims 1 ~~to 3~~, wherein ~~characterised in that~~

the open-pored surface layer consists substantially of a material selected from the group consisting of titanium, zirconium, niobium or tantalum.

7. **(Currently amended)** The s~~S~~urface layer according to ~~one of~~ claims 1 ~~to 4~~, wherein ~~characterised in that~~

the open-pored surface layer is sintered.

8. **(Currently amended)** A m~~M~~ethod of producing an implant selected from the group consisting of an open-pored coated implant, and ~~especially~~ a joint replacement implant, comprising ~~characterised by the following steps~~:

~~–~~applying ~~application of at~~ least one layer of a biocompatible metal or an alloy thereof to a virgin surface of the implant, to produce an implant surface; and~~,~~

~~–~~producing ~~production of~~ a surface micro-structure on the implant surface by means selected from the group consisting of etching of the implant surface, ~~and/or~~ application of fine biocompatible particles to the implant surface, and etching of the implant surface and application of fine biocompatible particles to the implant surface.

9. **(Currently amended)** The m~~M~~ethod according to claim 8, wherein ~~characterised in that~~

the biocompatible metal is applied by means of a vacuum plasma spraying method.

10. **(Currently amended)** The m~~M~~ethod according to claim 8, wherein ~~characterised in that~~

the biocompatible metal is applied by a technique selected from the group consisting of brushing, spreading, spraying, and a ~~or~~ like application techniques.

11. **(Currently amended)** The m~~M~~ethod according to ~~one of~~ claims 8 ~~to 10, especially according to claim 10, characterised in that~~ wherein

the at least one layer applied to the virgin surface of the implant is sintered.

12. **(Currently amended)** The m~~M~~ethod according to claim 11, wherein ~~characterised in that~~

Materials selected from the group consisting of binders, ~~and/or~~ sintering adjuvants, and binders and sintering adjuvants are used.

13. **(Currently amended)** The m~~M~~ethod according to claim 12, wherein ~~characterised in that~~

as sintering adjuvant there is used a sintering adjuvant metal which, together with the biocompatible metal or alloy thereof, forms a eutectic selected from the group consisting of low-melting eutectic, ~~especially~~ silicon, ~~or~~ cobalt, and a eutectic ~~preferably~~ in elemental powder form.

14. **(Currently amended)** The m~~M~~ethod according to ~~one of~~ claims 11 wherein ~~to 13, characterised in that~~

sintering is carried out *in vacuo*.

15. **(Currently amended)** The m~~M~~ethod according to ~~one of~~ claims 11 wherein ~~to 14, characterised in that~~

sintering comprises a phase selected from the group consisting of a debindering phase, a ~~and/or~~ dehydrogenation phase, and a debindering and dehydrogenation phase.

16. **(Currently amended)** The m~~M~~ethod according to ~~one of~~ claims 11 wherein ~~to 15, characterised in that~~

a sintering temperature in a range selected from the group consisting of ~~in~~ the range from 800°C to 1500°C inclusive, ~~preferably in~~ the range from 950°C to 1400°C inclusive, and ~~especially in~~ the range from 1000°C to 1350°C inclusive is used.

17. **(Currently amended)** The m~~M~~ethod according to ~~one of~~ claims 8 wherein ~~to 16, characterised in that~~

the biocompatible metal is used in a form selected from the group consisting of powder form and ~~, especially in the form of~~ an angular powder.

18. **(Currently amended)** The m~~M~~ethod according to ~~one of~~ claims 8 wherein ~~to 17, characterised in that~~

a layer thickness of the open-pored surface layer in a range selected from the group consisting of the range from 0.1 mm to 2.5 mm inclusive, ~~preferably in~~ the range

from 0.3 mm to 1.9 mm inclusive, and ~~especially in~~ the range from 0.5 mm to 1.5 mm is produced.

19. **(Currently amended)** The m~~M~~ethod according to ~~one of~~ claims 8 wherein ~~to 18, characterised in that~~

the biocompatible metal applied to the virgin surface of the implant has a particle size in a range selected from the group consisting of the range from 50 µm to 800 µm inclusive, ~~preferably in~~ the range from 100 µm to 650 µm inclusive, and ~~especially in~~ the range from 200 µm to 550 µm inclusive.

20. **(Currently amended)** The m~~M~~ethod according to ~~one of~~ claims 8 wherein ~~to 19, characterised in that~~

the biocompatible metal is selected from the group consisting of titanium, zirconium, niobium, and ~~or~~ tantalum.

21. **(Currently amended)** The m~~M~~ethod according to claim 8, wherein ~~one of claims 10 to 20, characterised in that~~

the biocompatible metal is used in the form of a metal hydride powder.

22. **(Currently amended)** The m~~M~~ethod according to claim 8, wherein ~~one of claims 8 to 21, characterised in that~~

the etching of the implant surface is carried out by means of a technique selected from the group consisting of acid (bath) etching, ~~and/or by means of~~ plasma etching, ~~especially~~ oxygen plasma etching, acid (bath) etching and plasma etching, and acid (bath) etching and oxygen plasma etching..

23. **(Currently amended)** The m~~M~~ethod according to claim 8, wherein ~~one of claims 8 to 22, characterised in that~~

the fine biocompatible particles have a particle size in a range selected from the group consisting of the range from 0.01 µm to 5 µm inclusive, ~~preferably in~~ the range from 0.1 µm to 3 µm inclusive, and ~~especially in~~ the range from 0.2 µm to 1 µm inclusive.

24. **(Currently amended)** The m~~M~~ethod according to claim 8, wherein ~~one of claims 8 to 23, characterised in that~~

the fine biocompatible particles are applied by a sol-gel method using a binder selected from the group consisting of a binder and, ~~preferably~~ a silicate-based binder.

25. **(Currently amended)** The m~~M~~ethod according to claim 8, wherein ~~one of claims 8 to 24, characterised in that~~

A material selected from the group consisting of titanium dioxide, calcium phosphate, and ~~or~~ another biocompatible material is used as material for the fine biocompatible particles.

26. **(Currently amended)** An i~~I~~mplant having ~~, especially a joint replacement implant, characterised by~~ a surface layer according to claim 1~~one of claims 1 to 7~~.

27. **(Currently amended)** Use of a surface layer according to ~~one of~~ claims 1 ~~to 7~~ for an implant selected from the group consisting of femoral stems, a sockets for a hip joints, a femoral components for a knee joint replacement, a tibial components for a knee joint replacement, a components for a shoulder joint replacement, a components for an elbow joint replacement, a components for a toe joint replacement, a components for a finger joint replacement, ~~for~~ a component for the fusion of vertebral bodies of the lumbar spine, ~~for~~ a components for an intervertebral disc replacement, ~~for~~ a transgingival implant systems, ~~for~~ an orthodontic implant systems, and a tooth (replacement) implants.

28. (New) The implant according to claim 26, wherein the implant is a joint replacement implant.